



**I. COURSE DESCRIPTION:**

Students will learn how to prepare basic pharmaceutical compounds. The complexity of accurate compounding from preparation techniques, calculations, weights, measures will be covered. The legislation and methods of documentation for these products will be emphasized. The creation of a quality product while maintaining the equipment and lab appropriately will be an expectation in this class.

**This course is designed to enable students to attain competencies specified in the National Association of Pharmacy Regulatory Authorities (NAPRA) Professional Competencies for Canadian Pharmacy Technicians at Entry to Practice September 2007.**

*Please consult the original documents at [www.napra.ca](http://www.napra.ca)*

**This course is designed to enable students to attain the educational outcomes specified in the Canadian Pharmacy Technician Educators Association (CPTA) Educational Outcomes for Pharmacy Technician Programs in Canada.(March 2007)**

*Please consult the original documents at [www.cptea.ca](http://www.cptea.ca)*

**This course is designed to enable students to meet and maintain the standards of practice expected within the pharmacy technician's role. The standards are specified in the National Association of Pharmacy Regulatory Authorities (NAPRA) Model Standards of Practice for Canadian Pharmacy Technicians. November 2011. (Full document available at [www.napra.ca](http://www.napra.ca))**

**Pharmacy Technicians apply their expertise in drug distribution while performing their daily activities.**

Pharmacy technicians, when distributing drugs,

22. c. compound in accordance with established formulae (NAPRA competency 4.1.3)

i. follow formulation instructions, calculate and confirm calculations and use proper techniques to prepare/ compound sterile, non-sterile, pre-packaged or reconstituted drug products and document calculations and procedures (4.1.3).

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

1. **determine the suitable environment/conditions, equipment, and formulation procedures and techniques required to prepare or compound products.**

Potential Elements of the Performance:

- Determine the set up requirements needed, including gathering of equipment and supplies; proper selecting and weighing of ingredients.
- Accurately perform pharmaceutical calculations required to compound various non-sterile dosage forms.

- Identify the purpose of each ingredient used in a formulation.
  - Describe and discuss the records that are required to be maintained for compounded products.
2. **prepare various non-sterile compounded products.**  
Potential Elements of the Performance:
- Demonstrate competency in the use and completion of master formula sheets.
  - Accurately perform pharmaceutical calculations required to compound various non-sterile dosage forms.
  - Use clean technique when compounding non-sterile preparations
  - Accurately and appropriately use an electronic balance and torsion balance.
3. **determine if final product suitable for release.**  
Potential Elements of the Performance:
- Assure the principles of compounding a product accurately, using proper technique have been applied.
  - Assure appropriate packaging and labelling of the finished product.
  - Explain and identify the appropriate expiration date, storage and handling conditions for compounded products.
  - Practice "independent double check" competently, emphasizing effective communication with colleagues and detecting errors.
4. **comply with legislative requirements and established policies and procedures.**  
Potential Elements of the Performance:
- Describe and differentiate "compounding" and "manufacturing".
  - Be familiar with and meet the established Good Manufacturing Practices (GMP) guidelines, Ontario College of Pharmacists (OCP) guidelines and Workplace Hazardous Materials Information System (WHMIS) guidelines
  - Discuss when the compounding of drug products is appropriate

### III. TOPICS:

1. Introduction
- Introduction to compounding
  - Why compound
  - Advantages and disadvantages of compounding
  - Patient considerations
  - Role of the pharmacy technician
2. Compounding practices and considerations
- Information resources
  - Legislation
  - Considerations for stability, solubility, shelf life, storage
  - Definitions and terminology

3. Calculations and compounding math
  - Dilutions and stock solutions
  - Expanding and reducing formulae
  - Percentages, conversions
  - Alligations
  - Aliquots and triturations
4. Facilities, equipment and supplies
  - Lab practices and safety procedures
  - Operation, maintenance, cleaning and storage of equipment
  - Handling of hazardous materials
5. Quality assurance and record keeping
  - Definitions of Quality Assurance (QA) and Quality Control (QC)
  - Standard Operating Procedures (SOPs)
  - Formulation Records
  - Compounding records
  - Independent double check
6. Ointments, creams, pastes and gels
  - Types and definitions
  - Composition and ingredients
  - Preparation and compounding techniques
  - Quality control
  - Packaging, labelling and stability
7. Solutions, suspensions and emulsions
  - Types and definitions
  - Composition and ingredients
  - Preparation and compounding techniques
  - Quality control
  - Packaging, labelling and stability
8. Medication flavouring
  - Taste types
  - Flavouring techniques
  - Compatibility

#### IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Compounding – The Pharmacy Technician Series by Mike Johnston  
ISBN-10;013147609 Publisher : Prentice Hall



***NOTE: Mid Term grades are provided in theory classes and clinical/field placement experiences. Students are notified that the midterm grade is an interim grade and is subject to change.***

**Note:** For such reasons as program certification or program articulation, certain courses require minimums of greater than 50% and/or have mandatory components to achieve a passing grade.

**A minimum of a “C” grade is required to be successful in all PTN coded courses.**

It is also important to note, that the minimum overall GPA required in order to graduate from a Sault College program remains 2.0.

#### **VI. SPECIAL NOTES:**

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

#### **VII. COURSE OUTLINE ADDENDUM:**

The provisions contained in the addendum located on the portal form part of this course outline.